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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,040	01/29/2002	Eric Baer	A-7273	2689

1726 7590 01/25/2005

INTERNATIONAL PAPER COMPANY
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EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,040

Applicant(s)

BAER ET AL.

Examiner

Melanie D. Bissett

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1711

1. The rejections based on 35 USC 103 have been maintained.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 19-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended claims recite that the blend layer has an oxygen transmission rate (OTR) of less than about 1 cc·mil/100 in²·day. However, the specification does not support such a range. First, the endpoint has not been shown as critical, since the specification neither mentions the range nor exemplifies its endpoint. Also, it is unclear how the reported values in units of cc/m²/day/atm convert to the claimed values in units of cc·mil/100 in²·day. Assuming a 1:1 conversion, only example 1 appears to show OTR rates of the blend layers falling within the claimed limits. This example varies amount of EVOH in the blend but exemplifies only type of EVOH and one polyolefin. Since the claims encompass any EVOH and any polyolefin for the blend layer, it is the examiner's position that the examples of the specification do not support the broad range of OTR values for all claimed blends.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 19-23 and 26-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman et al. in view of Pearson et al. (WO 96/10053).

6. From a prior Office action:

Huffman et al. discloses a coextruded multilayer laminate structure used to make a package. The laminate structure has a paper substrate and a multilayer coextrusion including a barrier layer of EVOH, a tie layer, and LDPE (see figure 1), meeting that aspect of claims 19 and 26.

The laminate structure in Huffman et al. also includes a layer of LDPE coated on the side of the substrate opposite the side coated with the multilayer extrusion (figure 1, meeting claims 21 and 27). The laminate structure in Huffman et al. does explicitly disclose the use of an additional tie layer between the paper substrate and the laminate structure, but the use of such a layer is immediately envisioned within the reference. Huffman et al. teaches that the substrate should be flame- or corona-treated before the application of the multilayer structure in order to improve the adhesion of the multilayer to the substrate. Another commonly used and well-known method of improving the adhesion of two layers is to use an adhesive or tie layer. Therefore, such a practice is envisioned within the reference, which then meets claim 20.

However, the barrier layer in Huffman et al. does not specify the exact composition of the EVOH or that the barrier layer is a blend of EVOH and an olefin polymer. Pearson et al. is included in the applicant's Information Disclosure Statement dated July 1, 2002. It discloses a barrier layer (page 2, line 28) made from a blend of PE and EVOH that meets the blend requirements of claims 19 and 26 (page 4, lines 16- 30), the EVOH composition of claims 22 and 28 (page 11, lines 3-4), and the polyolefin of claims 23 and 29 (page 3, lines 21-25).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the blend barrier layer in Pearson et al. in the multilayer laminate in Huffman et al. The motivation for doing so would be to utilize the material's good oxygen barrier properties. Therefore it would have been obvious to combine Pearson et al. with Huffman et al. to obtain the invention as specified in claims 19-23 and 26-29.

7. Additionally, it is noted that Pearson only optionally employs compatibilizers and that the blend layers containing 35-40% EVOH would possess the applicant's claimed

Art Unit: 1711

OTR values. This is supported by the fact that the reference teaches the same amounts of EVOH (overlapping 35-40%) and the same ethylene content of the EVOH.

8. Claims 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman et al. in view of Pearson et al. as applied to claims 19-23 and 26-29 above, and further in view of either Bradfute et al. or Rosenbaum et al.

9. From a prior Office action:

The combination of Huffman et al. and Pearson et al. is discussed above, but the references do not include the teaching that the adhesive tie layer is made from a modified PE. Both Bradfute et al. (column 3, lines 65-66) and Rosenbaum et al. (column 9, lines 65-66) show that it is known in the art that adhesive tie layers may be made from modified PE because of their advantageous adhesive properties.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use modified PE as the adhesive tie layer in the laminate structure taught by the combination of Huffman et al. and Pearson et al. The motivation for doing so would be to improve the interlayer adhesion in the laminate. Therefore it would have been obvious to combine the knowledge in Bradfute et al. or Rosenbaum et al. with Huffman et al. and Pearson et al. to obtain the invention as specified in claims 24 and 30.

10. Claims 19-22 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman et al. in view of the combined teachings of Svensson (EP 423511 A1) and Harita et al.

11. From a prior Office action:

Huffman et al. is discussed above, but does not specify the exact composition of the EVOH, that the barrier layer is a blend of EVOH and an olefin polymer, nor does it explicitly disclose the presence of a tie layer between the substrate and the multilayer structure.

Svensson is discussed in the previous office action and teaches that a blend of PE and EVOH provides a useful barrier layer for food packaging (column 5, line 41 and figure 1). The ratio of EVOH and PE in the blend meets the restrictions of claims 19 and 26 (column 4, lines 6-16), and figure 2 discloses the use of an additional tie layer between the substrate and the blend barrier

Art Unit: 1711

layer, which fulfills that aspect of claim 20. However, there is no mention of the ethylene content of the EVOH copolymer.

Harita et al. teaches that EVOH having the applicant's claimed amount of ethylene (claims 22 and 28) is commonly used in food packaging applications because of its barrier properties.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the blend barrier layer in Svensson with the EVOH content taught in Harita et al. as the barrier layer in the multilayer structure in Huffman et al. The motivation for doing so would be to utilize the barrier properties of the blend barrier layer. Therefore it would have been obvious to combine Svensson and Harita et al. with Huffman et al. to obtain the invention as specified in claims 19-22 and 26-28.

12. Additionally, it is noted that the blend layers containing the preferred 40% EVOH would possess the applicant's claimed OTR values. This is supported by the fact that the references teach the same amounts of EVOH and the same ethylene content of the EVOH.

13. Claims 23, 25, 29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman et al. in view of the combined teachings of Svensson and Harita et al. as applied to claims 19-22 and 26-28 above, and further in view of Charrier.

14. From a prior Office action:

The combination of Huffman et al., Svensson, and Harita et al. is discussed earlier in this action. However, the combined teachings of these references do not explicitly disclose that the PE in the EVOH/PE blend barrier layer is LDPE, teaching only the use of a general PE. Charrier teaches that regular PE encompasses LDPE. Therefore, Svensson encompasses the blend of EVOH and PE the applicant claims in claims 23 and 29.

As already discussed, Svensson teaches the blend ratios of PE to EVOH found in claims 25 and 31 and Harita et al. teaches the ethylene content of the EVOH in claims 25 and 31. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to use LDPE in the multilayer structure taught by the combination of Svensson and Harita et al. and to use the specific compositions that the applicant claims. The motivation for using LDPE would be that Svensson's disclosure of regular PE includes the use of LDPE. The motivation for using the specific composition the applicant claims would be that the references teach towards such a composition. Therefore it would have been obvious to combine Charrier with the combined

Art Unit: 1711

teachings of Harita et al., Svensson, and Huffman et al. to obtain the invention as specified in claims 23, 25, 29, and 31.

15. Claims 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman et al. in view of the combined teachings of Svensson and Harita et al. as applied to claims 19 and 26 above, and further in view of either Bradfute et al. or Rosenbaum et al.

16. From a prior Office action:

The combination of Svensson, Harita et al., and Huffman et al. is discussed above, but the references do not include the teaching that the adhesive tie layer is made from a modified PE. Both Bradfute et al. (column 3, lines 65-66) and Rosenbaum et al. (column 9, lines 65-66) show that it is known in the art that adhesive tie layers may be made from modified PE because of their advantageous adhesive properties.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use modified PE as the adhesive tie layer in the laminate structure taught by the combination of Huffman et al., Svensson, and Harita et al. The motivation for doing so would be to improve the interlayer adhesion in the laminate. Therefore it would have been obvious to combine the knowledge in Bradfute et al. or Rosenbaum et al. with Huffman et al., Svensson, and Harita et al. to obtain the invention as specified in claims 24 and 30.

Response to Arguments

17. In response to the applicant's argument that one would not incorporate a blend into Huffman since Huffman teaches that the EVOH and LDPE are incompatible, it is noted that Pearson teaches that improved barrier layers result from blending EVOH and polyolefin materials. One skilled in the art would recognize that such materials, when blended, would be capable of function as a suitable barrier layer since Pearson teaches this is so. Huffman does not teach away from blends or exclude blends but appears to be silent the issue. The fact that tie layers are preferred between EVOH and LDPE

Art Unit: 1711

layers is irrelevant to the use of blend layers since it is known in the art that blend layers provide suitable barrier layers.

18. Regarding the applicant's arguments that one would not look to Pearson for "good oxygen barrier properties" since the blend layers have lower OTR values than 100% EVOH, it is noted that Huffman does not exclude blend layers or require the barrier layers to have certain OTR values. Pearson notes that the blend layers have "excellent oxygen barrier properties" (p. 2 line 28). Thus, it would have been obvious to use such blend layers in Huffman for its excellent barrier properties. The applicant notes an additional motivation for choosing the blends, pointing to Pearson's teaching that EVOH is expensive and that blend layers serve to reduce cost. One would certainly be motivated to reduce cost of the barrier layers by blending EVOH with less expensive materials.

19. In response to the applicant's arguments that Pearson requires a compatibilizer to form layers of low OTR values, the examiner respectfully disagrees with the applicant's logic. The applicants argue that low OTR values are only obtained when compatibilizers are used and so one would recognize that compatibilizers are necessary in Pearson's blend layers to obtain low OTR values. However, this argument is contradicted by the fact that example F shows the second highest OTR values of all examples, where example F employs a compatibilizer and examples A-E do not. The reference makes no analysis of compatibilizer use compared to OTR values and consistently refers to the compatibilizer as optional. The reference does, however, teach that OTR values improve with higher EVOH amounts. Example G, having the

Art Unit: 1711

lowest OTR value, has almost twice as much EVOH as the other examples. The reference teaches that amounts of 35-40% EVOH may be used in the blend layers, and it is the examiner's position that one skilled in the art would recognize the OTR benefits of using almost 4x as much EVOH in the blend layers. The blend layers of Pearson's invention having 35-40% EVOH would possess the applicant's claimed OTR values.

20. Regarding the applicant's argument that the secondary reference, Pearson, teaches that higher contents of EVOH are not preferred because of the cost, note that Pearson teaches the use of 35-40% EVOH, which overlaps the applicant's claimed range. The reference as a whole teaches the claimed range. Also, Svensson has been used to show the benefits of the blend. Svensson teaches a preferred range of 20-50% EVOH, most preferably about 40% EVOH (col. 4 lines 6-16). This overlaps the applicant's claimed range.

21. In response to the applicant's arguments that Svensson teaches that PE layers should not be used as an outer layer, it is noted that the Huffman reference teaches this limitation. Svensson serves to teach the conventionality of using EVOH/polyolefin blend layers as barrier layers. The reference teaches that the blend layers balance barrier and cost properties (col. 3 lines 43-56). One skilled in the art would expect these barrier properties to stay constant regardless of where the layer is placed in a laminate. When the barrier layer of Svensson is substituted for the barrier layer of Huffman, the laminate would still meet the claimed layer structure.

22. Regarding the applicant's arguments that the ethylene content of Harita's invention refers to EVA and not EVOH, it is first noted that the abstract clearly states

Art Unit: 1711

that an ethylene-vinyl alcohol copolymer should have an ethylene content of 20-60 mol%. Furthermore, Harita teaches that the EVOH copolymers are formed by saponifying ethylene-vinyl ester copolymers. Thus, the ethylene content in the ethylene-vinyl ester copolymer and in the final EVOH product would be the same.

Regardless, Harita clearly teaches preferred ethylene contents for EVOH, not EVA, and teaches that variance of ethylene content controls gas barrier properties (col. 3 lines 14-39). Thus, one skilled in the art would be motivated to use the ethylene contents taught by Harita. Since the combined references teach the claimed ethylene contents and EVOH contents, it is the examiner's position that the blend layers would possess the claimed OTR values.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

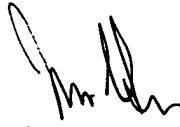
Art Unit: 1711

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdb



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